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The Loom and Spindle, Past, Present and Future. LUTHER HOOPER.
(Smithsonian Report for 1914, pp. 629-678.) Washington, 1915.

[Canton Lectures delivered before the Royal Society of Arts, London, Feb. 26, March 4 and 11, 1912. Reprinted by permission from the Journal of the Royal Society of Arts, Sept. 6, 13, 20, 1912.]

In a recent monograph, Mr. Luther Hooper treats in a most interesting manner the development of the modern loom and spinning processes. Starting from the earliest examples, he traces the mechanical evolution in a way that leaves little to be discussed. A portion of this paper was contained in his excellent work entitled *Hand Loom Weaving*, but much new matter has been added. On the primitive forms of textiles, at least their technical problems, there is too little literature. It is rarely indeed that a writer appears possessing the necessary mechanical knowledge, coupled with an interest in the problems of ethnology and archeology.

On page 632 is an illustration of a loom intended to convey rather the essential movements of weaving than to represent any known type. Perhaps the statement that sticks separating the warps are essential to the formation of a workable warp may not be quite exact since some very rudimentary looms exist in which these crosses are absent. But it is certainly true that wherever great numbers of warps are used, such devices are indispensable.

Deviating for the moment from the sequence of Mr. Hooper's article, attention may be drawn to the illustrations of Greek looms on page 636. This loom may be termed the weighted warp type. Besides the places mentioned in the text this class of loom is used among the Chilkat Indians of Alaska. It may be mentioned that the feature of this loom was that it did not allow for the use of the heald rods in the shedding of warps and for this reason could not develop to such a degree as the type about to be considered.

The loom of Calabar illustrated on page 647, fig. 28, is typical of the two-barred heald rod loom which is almost universal. This form of loom, with only minor differences, was used by the natives of Asia and Egypt, and appears in every cotton weaving region except among the Chilkat. Fig. 13, page 641, gives a very clear idea of the purpose of the heald rod. It is, however, a single heald capable only of raising one set of warps. On such a loom the alternate sheds were formed with the aid of the weave sword. Fig. 28, however, has two healds operating alternate sheds and for plain weaving no other shedding devices were required. In weaving with this type of loom it is obvious that one hand

operated the healds while the weft bobbin was inserted with the other. If, however, cords were attached to these healds in such a way as to permit the formation of sheds by a simple pressure of the foot, both hands would be left free for weaving. This would naturally greatly increase the production of the loom. In fig. 29, page 647, the simplest form of such a loom is illustrated. This type of loom is the forerunner of every power loom in our mills today. The great change effected by this simple invention entitles it to consideration as one of the most important in textile history. In the revolutionary effects it produced, it can be compared only with the fly shuttle of Kay, one having as powerful an influence on the management of the warps as the latter on the insertion of weft.

This foot treadle loom was introduced by the Spaniards into Mexico very soon after the Conquest. Perhaps a form such as depicted in fig. 33, page 650, was the one introduced. Apparently the Mexican weavers quickly recognized the improvement in point of output this loom had over their simpler form, and this type of loom unquestionably modified the technique of weaving to a great degree. Mr. Hooper, starting from this simple form, carries the reader easily along through the intricate mechanical additions of the Middle Ages to the culminating achievements of Jacquard and even suggests the future form of the loom. But this part of the paper has a more direct appeal to the textile student than to the ethnologist.

Returning to page 633, a brief description of the essential movements of hand spinning is given. Here again the purpose has been to outline the basic principle rather than describe the craft of any particular people. This is of great value as permitting an observer to comprehend the meaning of the different methods which vary with race, nature of fibers, and other conditions. Plate II is devoted to the spindles of different races. It is unfortunate that descriptive names are not applied to the terms, "whorl" and "spindle." A very cursory examination of the illustration will show that while the object of each is the production of spun thread, yet the difference in form, weight, and position of whorls, indicates that there was a corresponding difference in method. For example, the whorls of Egypt evidently acted as fly wheels and thus exerted a definite spinning function; whereas the band of pottery or copper ball on the Peruvian spindle was simply a device to prevent the completed cop of yarn from slipping. The other object from this latter country is in reality a weaving bobbin and not used in spinning at all.

The early form of spinning wheel shown in fig. 6, page 634, is an

immense mechanical advance over the earlier forms of hand spinning described (an illustration of one example of which is given in fig. 5 on the same page). The transition between these two forms is too abrupt; somewhere in the past there must have been intermediate techniques which would connect these methods.

If what has been said be taken in any sense as criticism, the intention of the reviewer has been defeated. The work is not only excellent, but is in reality the best paper of this nature it has ever been his good fortune to read. Its only fault is its brevity and perhaps its talented author will some day correct even this.

The fallacy of considering hand-loom weaving and machine-weaving as disconnected phenomena is fully exposed in this paper. The immense age of weaving, its continuous practice, even in its simplest forms down to our day, permits the great art to be very carefully studied. There is a great opportunity for the collaboration of the technical expert with the trained ethnologist and archeologist, to their mutual profit. The careful and studious works of Mr. Hooper along these lines are deserving of the highest praise.

M. D. C. CRAWFORD

NORTH AMERICA

The Ammassalik Eskimo. Contributions to the Ethnology of the East Greenland Natives. Edited by WILLIAM THALBITZER. Part I. Copenhagen, 1914.

This is in certain respects a new edition of Vols. IX and X of *Meddelelser om Grønland*, but in English instead of Danish. This feature, with the addition of many new illustrations and the incorporation of later observations, gives us essentially a new work. Three expeditions are reported upon:

(1) The expedition of Captain Gustav Holm, the discoverer of Ammassalik, carried out in 1883-85, (2) Captain G. Amdrup's expedition, entitled *The Carlsberg Fund Expedition to East Greenland*, and (3) W. Thalbitzer's voyage and wintering at Ammassalik in 1905-06, carried out in accordance with the instructions of the Commission for the Direction of the Geological and Geographical Investigations in Greenland, the expenses being defrayed by the Carlsberg Fund.

The Ammassalik Eskimo here designated are a semi-isolated group upon the east coast of Greenland, concerning which we had no very definite data before Captain Holm's return in 1885. Holm's expedition was originally projected to seek the traditional eastern settlement of the